Summary of 2015 (1st Quarter) Fatal Accidents at Coal Mines and Preventative Recommendations

During the first quarter of 2015, four miners were killed in accidents in the coal mining industry. One miner died in a **Machinery** accident and one miner died in a **Roof Fall** accident. Two miners died as a result of separate Fall of Face or Rib accidents. We need to work together to prevent additional fatalities.

When completed, a detailed investigation report of each fatality is posted on the MSHA website at:

http://www.msha.gov/fatals/fab.htm

Here is a brief summary of these accidents:

One miner was killed in a Machinery accident.
A 43-year-old continuous mining machine operator with 10 years of mining experience was killed when he was pinned between the conveyor boom of a remote controlled continuous mining machine and a coal rib. The victim was operating the continuous mining machine from a remote position in the entry and was preparing for the next mining cycle when the accident occurred.

One miner was killed in a Roof Fall accident.
A 29-year-old roof bolter helper with 3 years and 48 weeks of mining experience was killed when a piece of rock approximately 3 feet wide, 11½ feet long, and 3 to 16 inches thick fell and pinned him against the top of the drill canopy of a roof bolting machine. The roof bolting machine was positioned to install the next row of permanent supports when the accident occurred.

Two miners were killed in Fall of Face or Rib accidents.
A 45-year old assistant longwall coordinator with twelve years of experience was killed while working a longwall section. The victim was shoveling loose material between the longwall face and the pan line when a large piece of rock, 12 feet long by 5 feet wide by 1 foot thick, fell from the face and struck him.

A 34-year-old section foreman with 10 years of mining experience was killed when a coal/rock rib approximately 90 inches long, 45 inches high, and 15 to 18 inches thick fell and pinned him against the side of a shuttle car.

Best Practices
Miners do not need to die while working at coal mining operations. These fatalities can be prevented. No miner should die while working. Effective safety and health management programs save lives. Workplace examinations can identify and eliminate hazards that kill and injure miners. Effective and appropriate training help ensure that miners recognize and understand hazards and how to control or eliminate them.

While some of the specific circumstances of these accidents remain under investigation, here is what we know at this time:

Machinery Accident
These deaths can be prevented by following well-known precautions:

- Install and maintain proximity detection systems to protect personnel and eliminate accidents of this type. See the proximity detection information page on the MSHA website (http://www.msha.gov/Accident_Prevention/NewTechnologies/ProximityDetection/ProximitydetectionSingleSource.as).
- Avoid "RED ZONE" areas when operating or working near a continuous mining machine, especially when moving a remote controlled continuous mining machine. Frequently review, retrain, and discuss avoiding "RED ZONE" areas (http://www.msha.gov/Alerts/20040407REDZONE2.pdf).
- Ensure all miners, including the continuous mining machine operator, are outside the machine's turning radius before starting or moving equipment.
- Stay behind moving mobile equipment when traveling in the same entry, and maintain a safe distance from any moving equipment.
- Use low tram speed when moving a continuous mining machine where the left and right traction drives are operated independently. The continuous mining machine pivots quickly when the tracks tram over raised areas of the mine floor.
- Never turn your back to a self-propelled machine or get into an area where it can swing into you.
- Develop and follow effective policies and procedures for starting and tramming self-propelled equipment. Train all miners regarding these policies and procedures.
- Ensure that the continuous mining machine operator has full visibility of the area while tramming equipment.
- Assign another miner to assist the continuous mining machine operator when the machine is being moved or repositioned.

Roof Fall Accident
These deaths can be prevented by following well-known precautions:

- Visually examine the roof, face, and ribs immediately before any other work is started in the area.
- Be alert to changing conditions, especially after activities that could cause roof disturbance.
- While under supported roof, perform sound and vibration tests where roof supports are to be installed.
- Establish in the roof control plan a bolt installation pattern that effectively supports the roof strata.
- Adequately support or scale down any loose roof or rib material from a safe location.

- Ensure that ATRS systems on all roof bolting machines are maintained in good working condition. Ensure the ATRS sets firmly against the mine roof, as specified by the manufacturer, before installing new roof supports.
- As much as possible, stay under the roof bolting machine's drill canopy when working in the area between the ATRS and the last row of permanent roof supports.
- Take additional measures when hazards associated with draw rock are encountered, such as mining shorter cuts and decreasing roof bolt spacing.
- When using roof screen, implement work procedures that incorporate positioning and securing the mesh from a safe location.
- Know and follow the approved roof control plan. Install and examine test holes regularly to check for changes in roof strata.
- Add additional supports at <u>any indication</u> of adverse roof conditions.

Fall of Face or Rib Accidents
These deaths can be prevented by following well-known precautions:

- Conduct thorough and more frequent examinations of the roof, face, and ribs, when abnormal conditions are present. Watch for frequently changing conditions.
- Danger off hazardous areas until appropriate corrective measures can be taken. Correct all hazardous conditions before allowing persons to work or travel in such areas.
- Scale hazardous roof, face, or rib conditions and adequately support such areas. Ensure that a bar of suitable length and design is used when removing loose or unconsolidated material.
- Install longwall shield extensions to cover a portion of the face and minimize unsupported areas.
- Implement policies, programs, procedures, and controls to protect miners working in the face conveyor areas.
- Reinstruct all miners in hazard recognition, adequate support methods and safe work practices when abnormal conditions or circumstances are present on the longwall face. Be aware of potential hazards <u>at all times</u> when working or traveling near ribs.
- Avoid areas of close clearance between ribs and equipment.
- Know and follow the approved roof control plan and provide additional support when cracks or other abnormalities are detected. **<u>Remember</u>**, the approved roof control plan contains **<u>minimum</u>** requirements.
- Install rib bolts on cycle and in a consistent pattern for the best protection against rib falls.
- Train all miners to conduct thorough examinations of the roof, face, and ribs where persons will be working and traveling.

Violations of the priority standards identified as **Rules to Live By** continue to play key roles in mine fatalities. While the mine site portion of the fatality investigations have been completed, not all of the violations have been identified,

and not all of the associated citations and orders have been issued, it currently appears that violations of the Rules to Live By standards were still involved in several of those fatalities. MSHA's inspectors will be especially mindful of these issues while performing inspections. They will be talking to miners and mine supervisors in mines throughout the country to discuss these kinds of fatalities, and the ways to prevent them.

Contractors
No contractor was killed at coal mining operations in the first quarter of 2015. Contractors and mine operators should ensure that contractor employees are properly trained and follow the mine's safety policies and procedures. Contractors and mine operators should coordinate operations at the mine to ensure that safety and health management programs are in place and are effective, all workplace examinations are performed, and safe work procedures are followed.

The importance and value of effective **safety and health management programs** cannot be overstated. A thorough, systematic review of all tasks and equipment to identify hazards is the foundation of a well-designed safety and health management program. Modify equipment, processes, work procedures and management systems to eliminate or control identified hazards. Operators and contractors should create effective safety and health management programs, ensure that they are implemented, and periodically review, evaluate, and update them.

If an accident or near miss does occur, find out why and act to prevent recurrence. If changes to equipment, materials or work processes introduce new risks into the mine environment, address them immediately.

Conducting **workplace examinations** before beginning a shift and during a shift – every shift – can prevent deaths by finding and fixing hazards. All required workplace examinations must be performed and identified hazards eliminated to protect miners.

Providing effective and appropriate **training** to miners is a key element in ensuring their safety and health. Mine operators and Part 48 trainers need to train all miners to recognize the conditions that lead to deaths or injuries and ensure that measures are taken and followed to eliminate hazardous conditions. Training all miners to follow safe work procedures and stay focused on the task they are performing cannot be stressed enough.

Miners deserve a safe and healthy workplace and the right to go home safe and healthy at the end of every shift, every day. Working together makes that happen.